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(54) **INNER FRAME BLANK FOR A PACK OF TOBACCO INDUSTRY PRODUCTS**

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CPC ***B65D 75/38*** (2013.01); ***B65D 75/5838*** (2013.01); ***B65D 81/2023*** (2013.01); ***B65D 81/2038*** (2013.01); ***B65D 85/1045*** (2013.01)

(58) **Field of Classification Search**
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(Continued)

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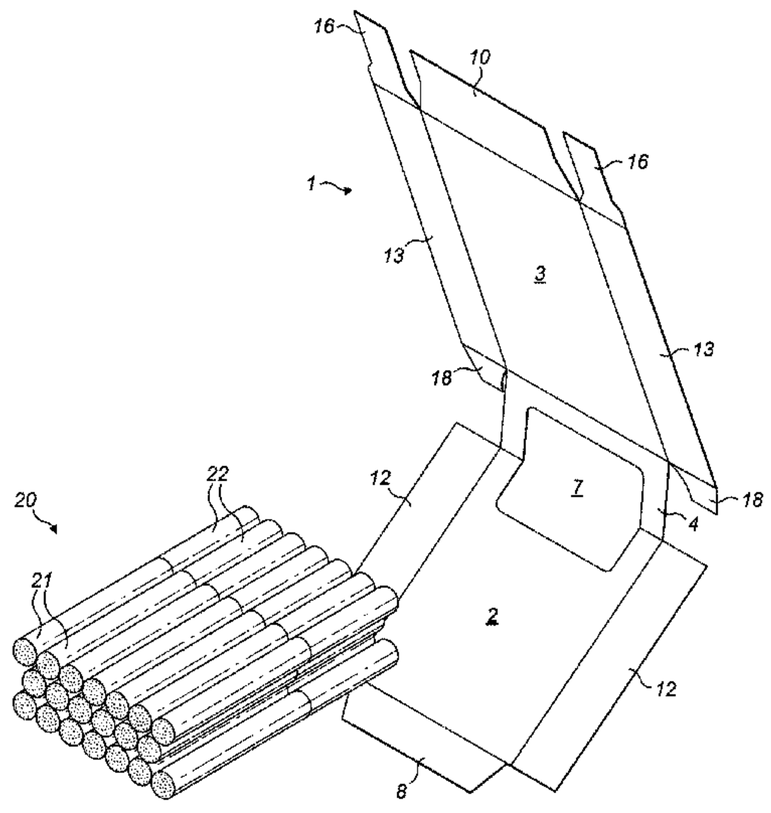
(57) **ABSTRACT**

An inner frame blank for a pack of tobacco industry products, where the inner frame blank is foldable to form an inner frame for holding a group of tobacco industry products, and the inner frame blank has a first major panel and a second major panel joined to opposing edges of a central panel such that the first and second major panels are foldable relative to the central panel to form opposing sides of the inner frame, and where the inner frame blank also has an aperture in at least the central panel that defines an extraction opening for removing tobacco industry products from within the inner frame when the inner frame blank is folded to form the inner frame.

16 Claims, 9 Drawing Sheets



(51) **Int. Cl.**
B65D 75/58 (2006.01)
B65D 81/20 (2006.01)

(58) **Field of Classification Search**
CPC B65D 85/10; B65D 85/1009; A24F 15/02; A24F 15/12; A24F 15/16; A24F 15/06
USPC 206/264
See application file for complete search history.

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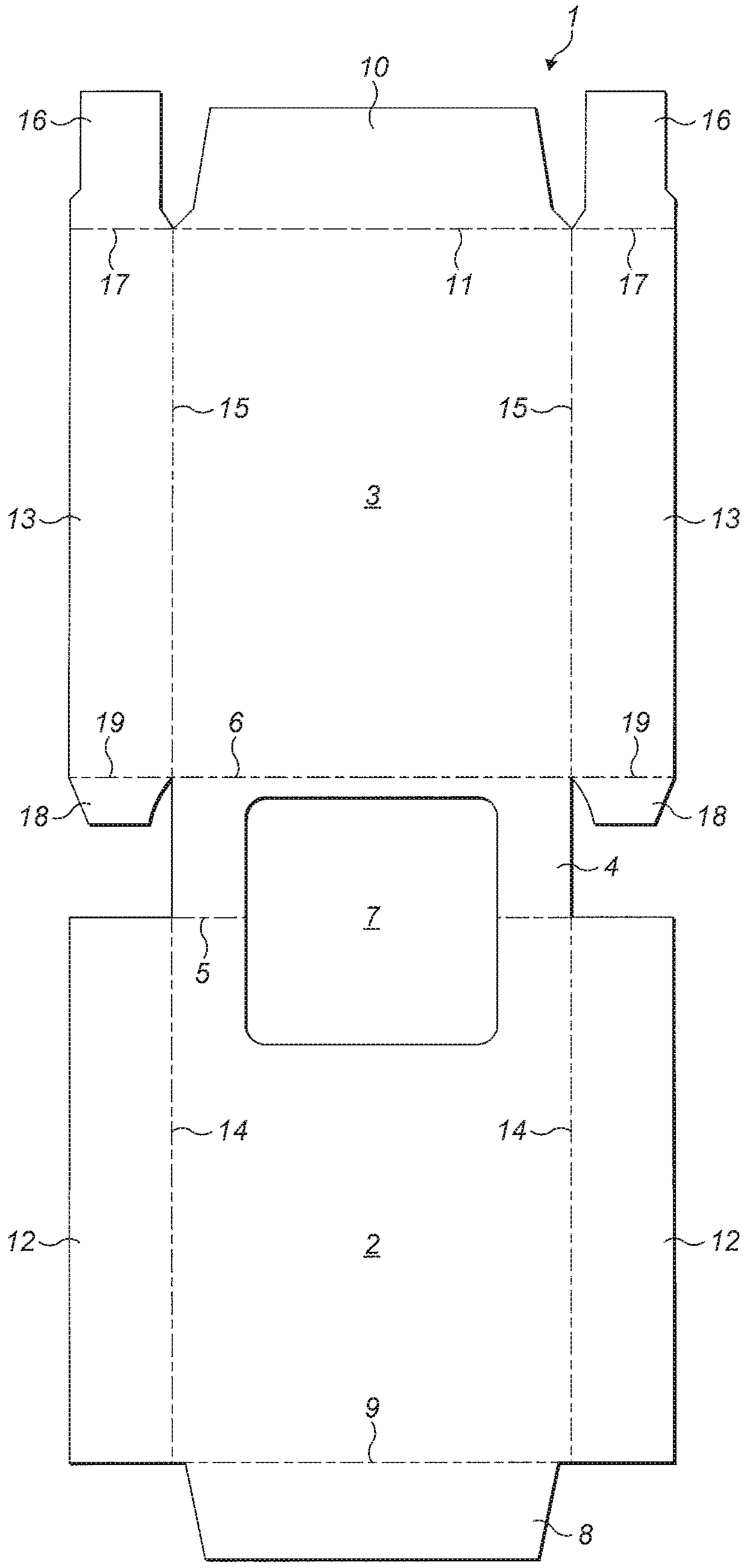

FIG. 1

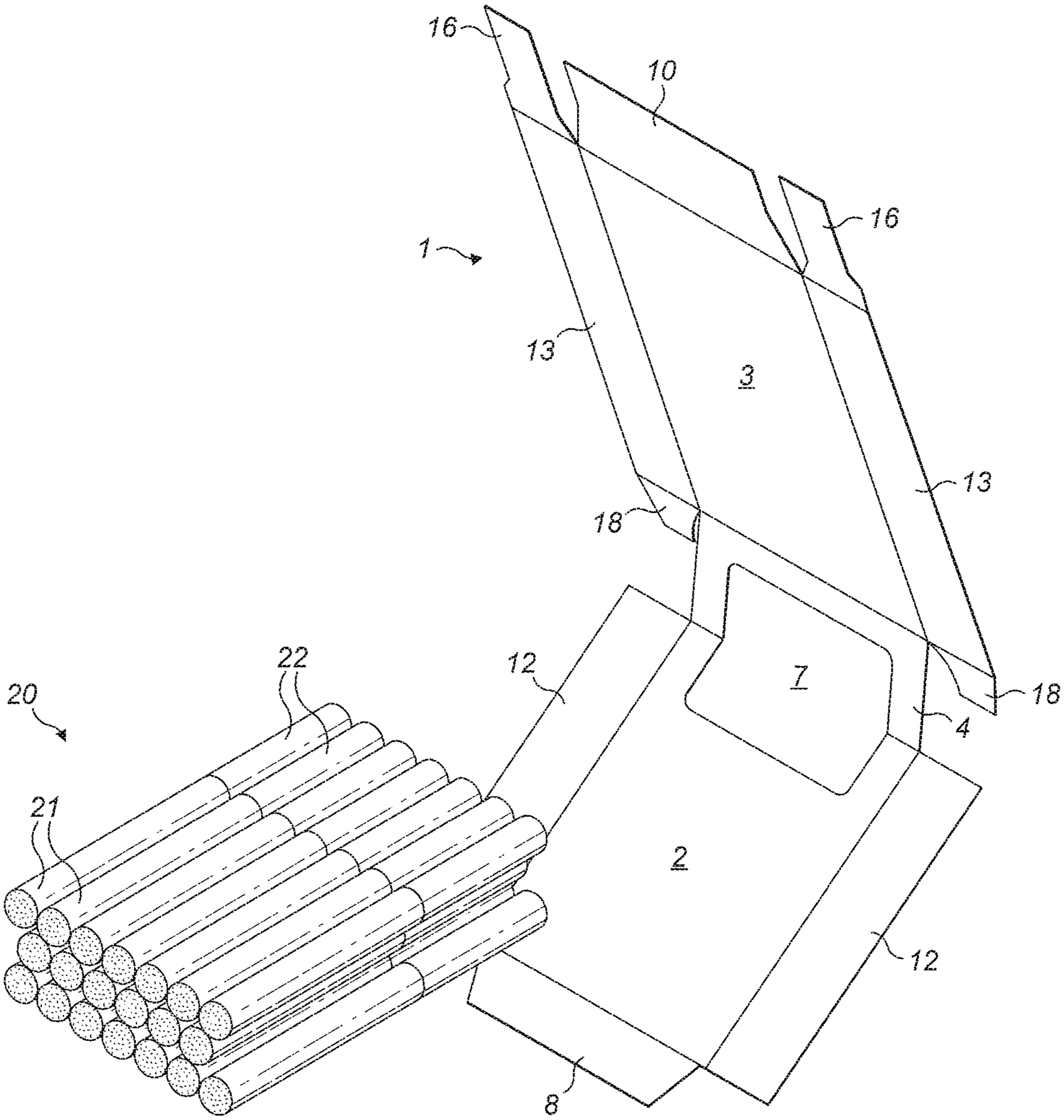

FIG. 2

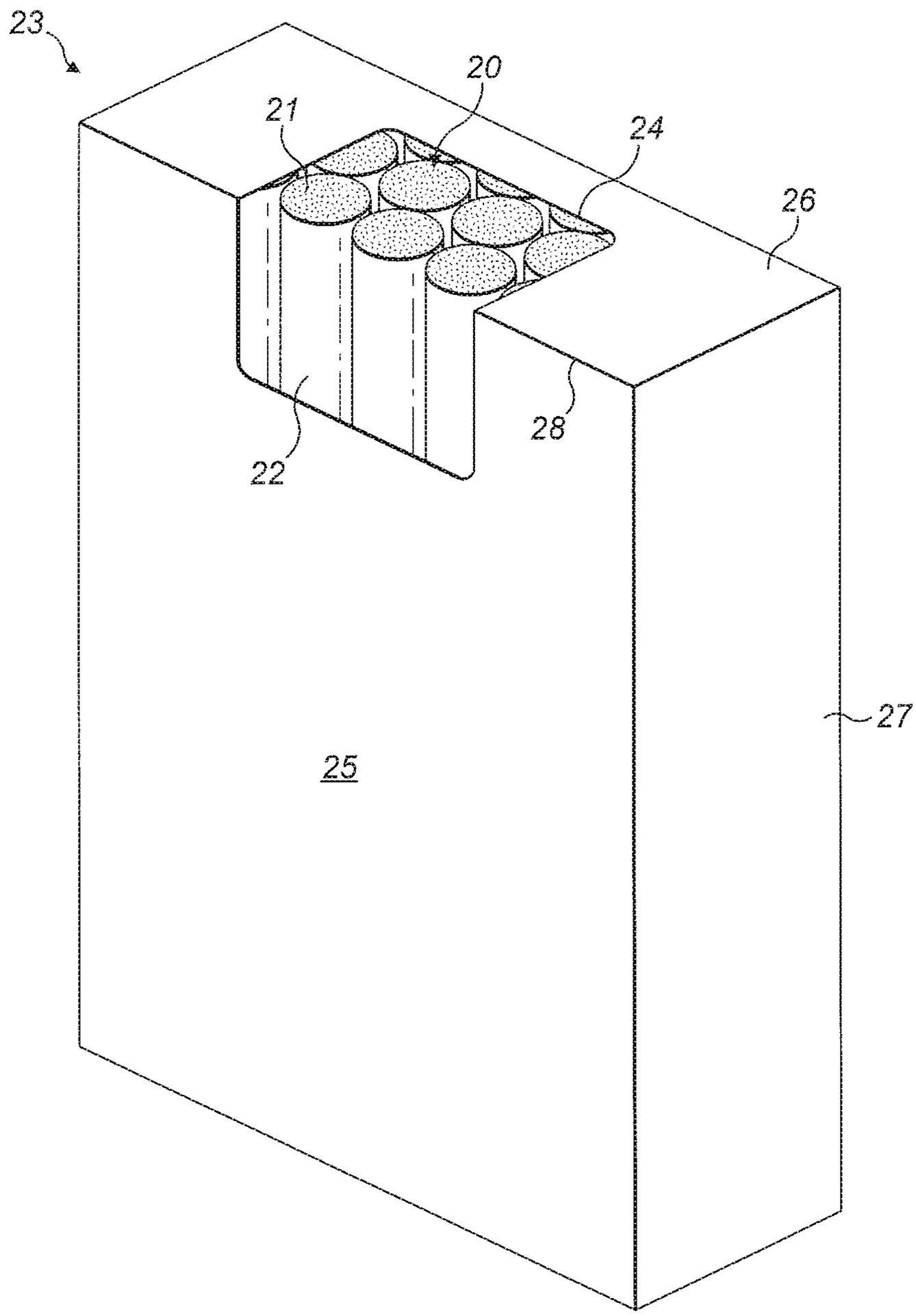

FIG. 3

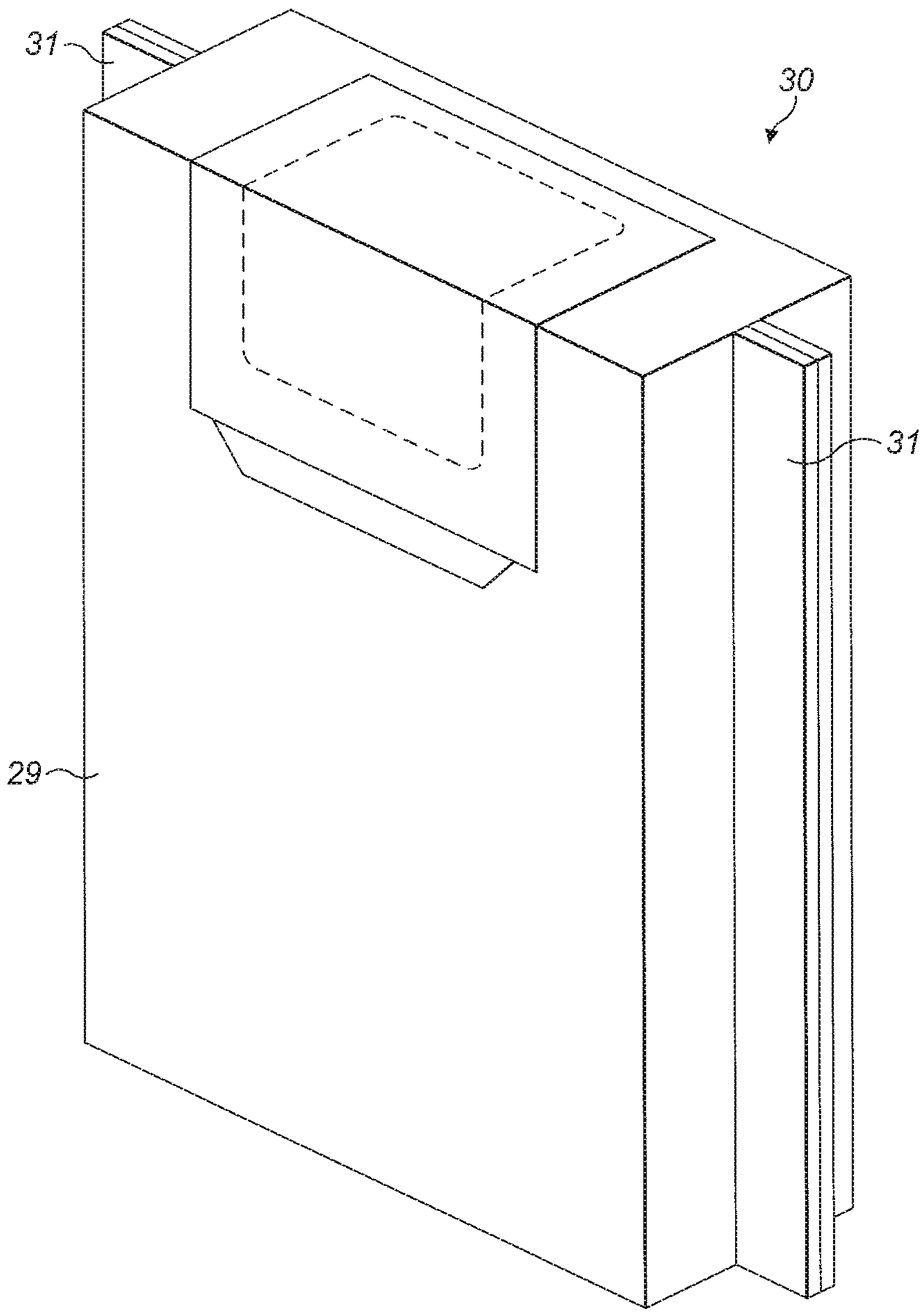

FIG. 4

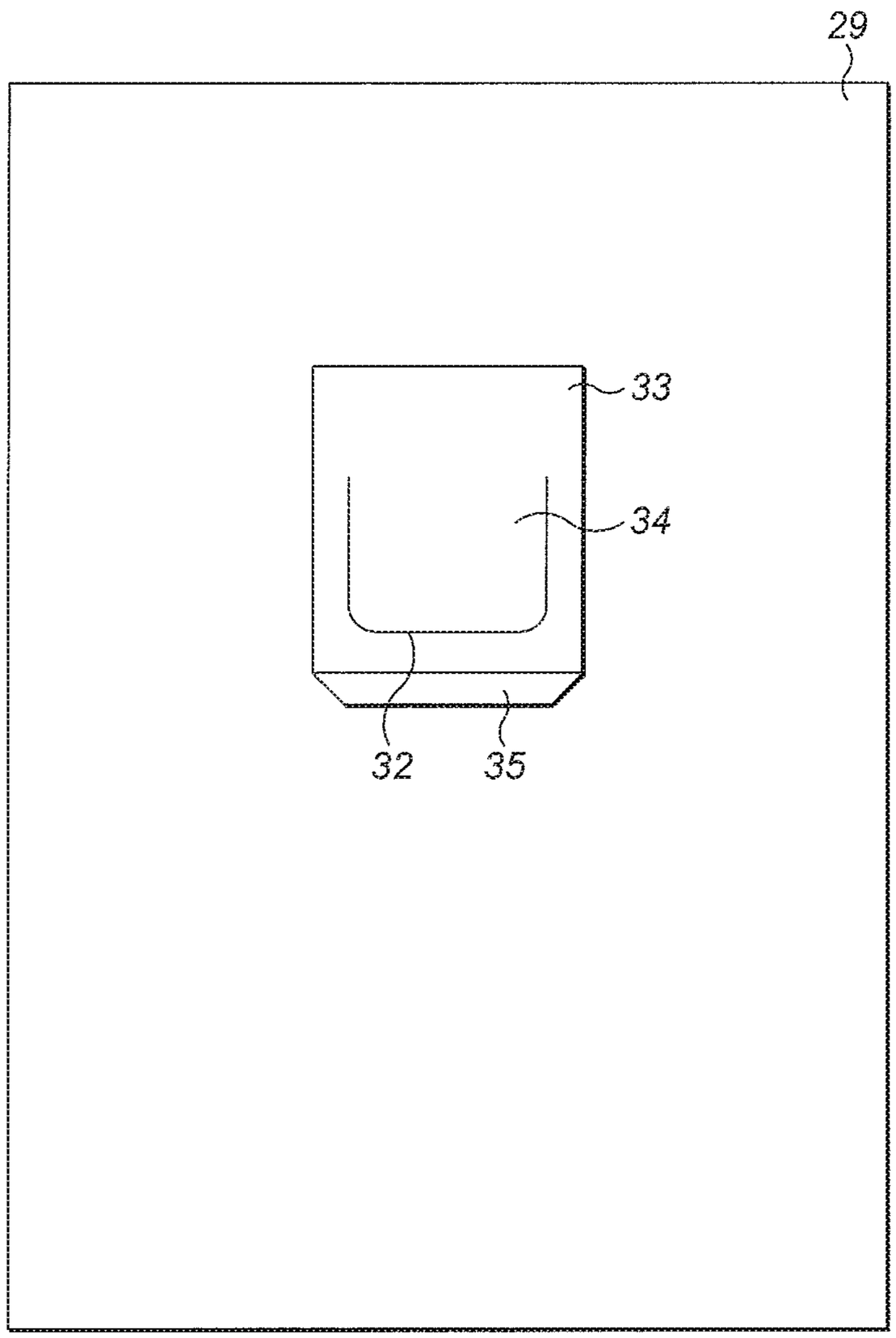

FIG. 5

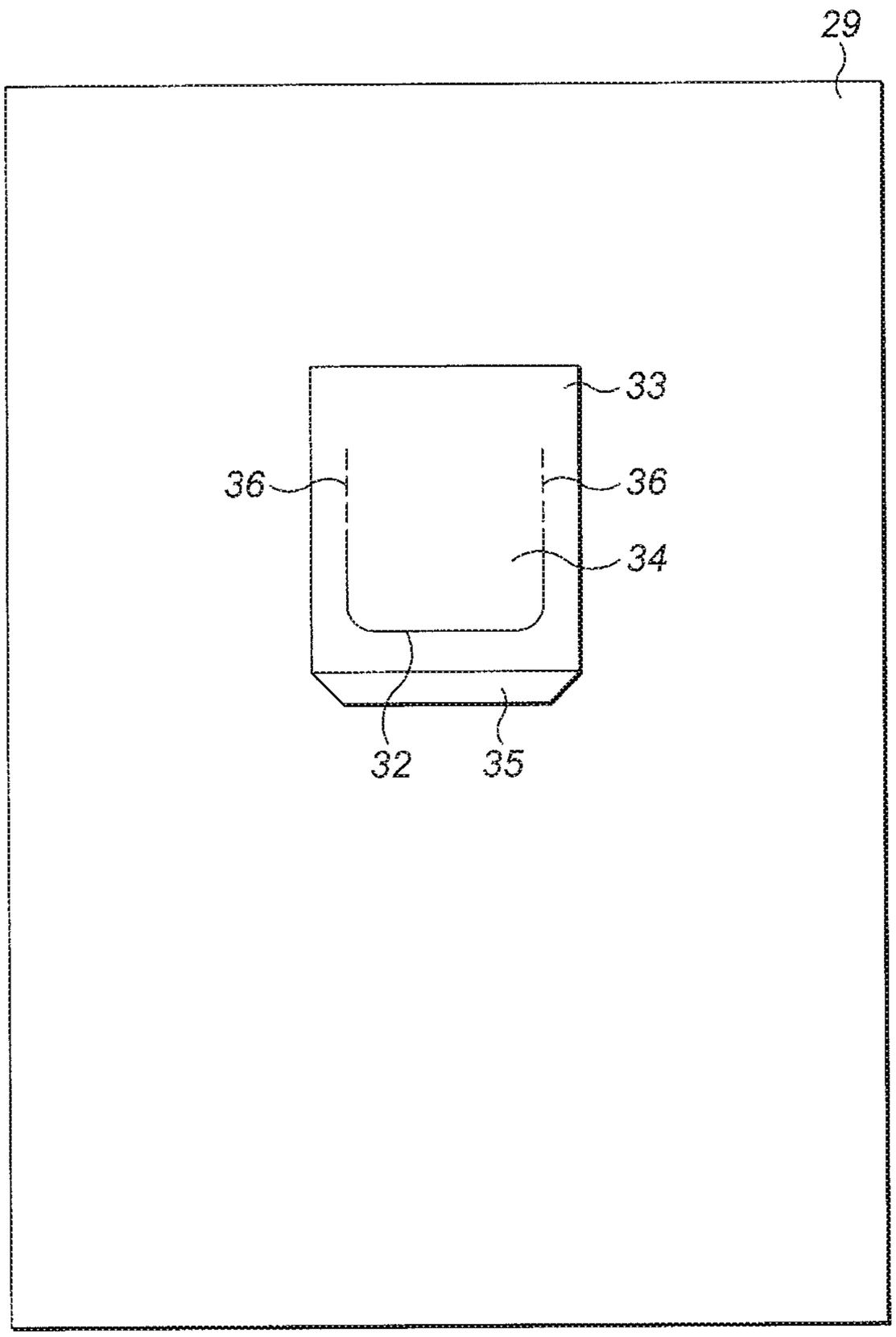

FIG. 6

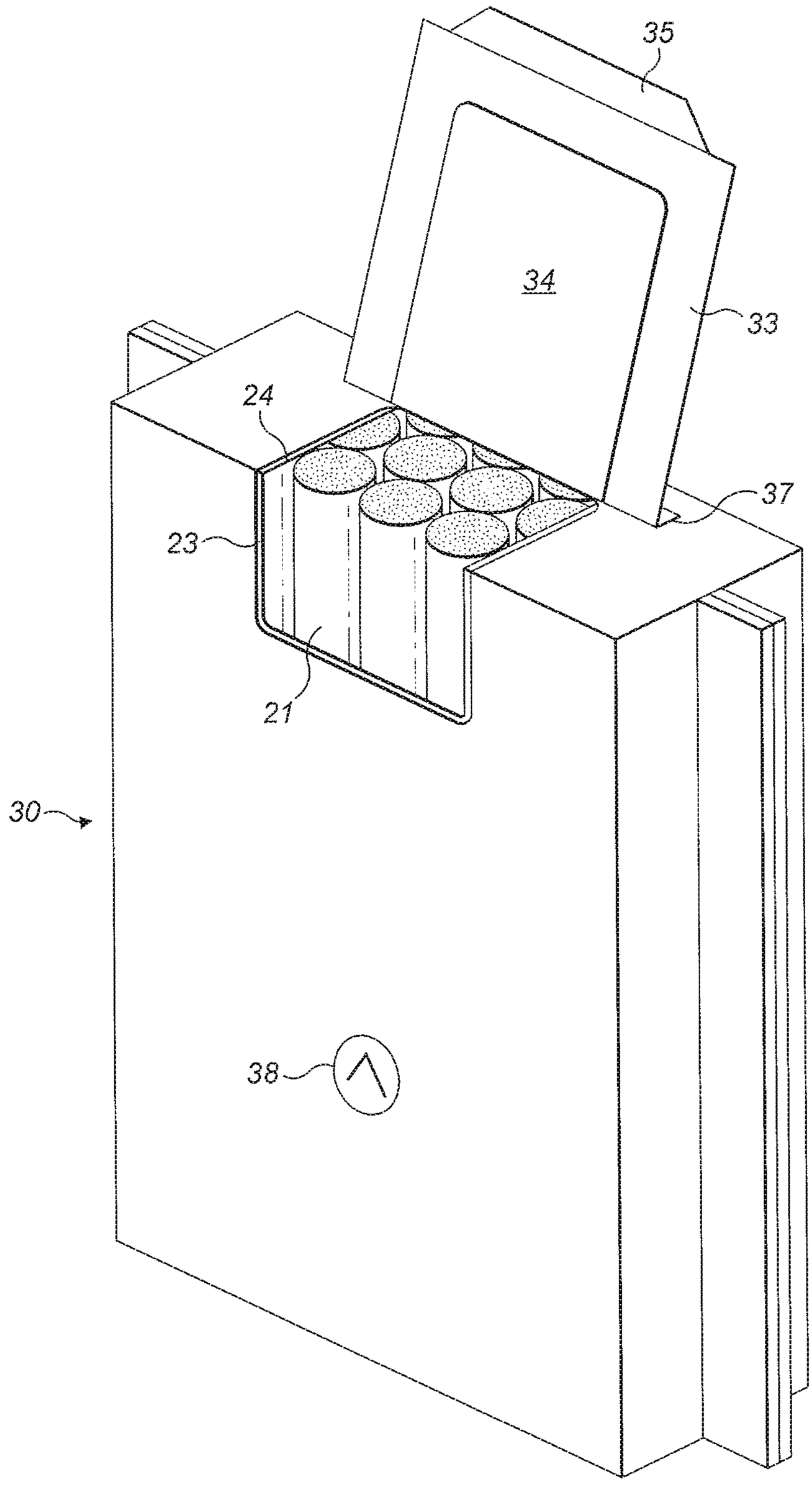

FIG. 7

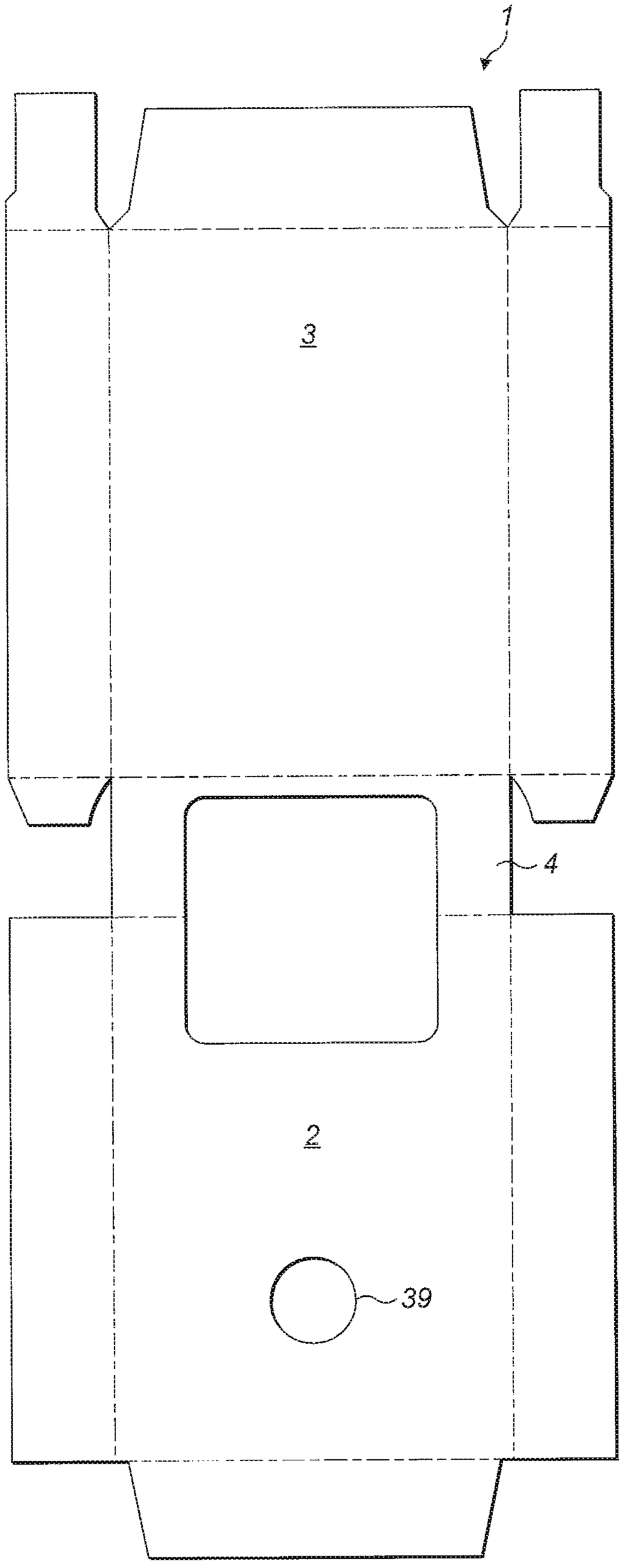

FIG. 8

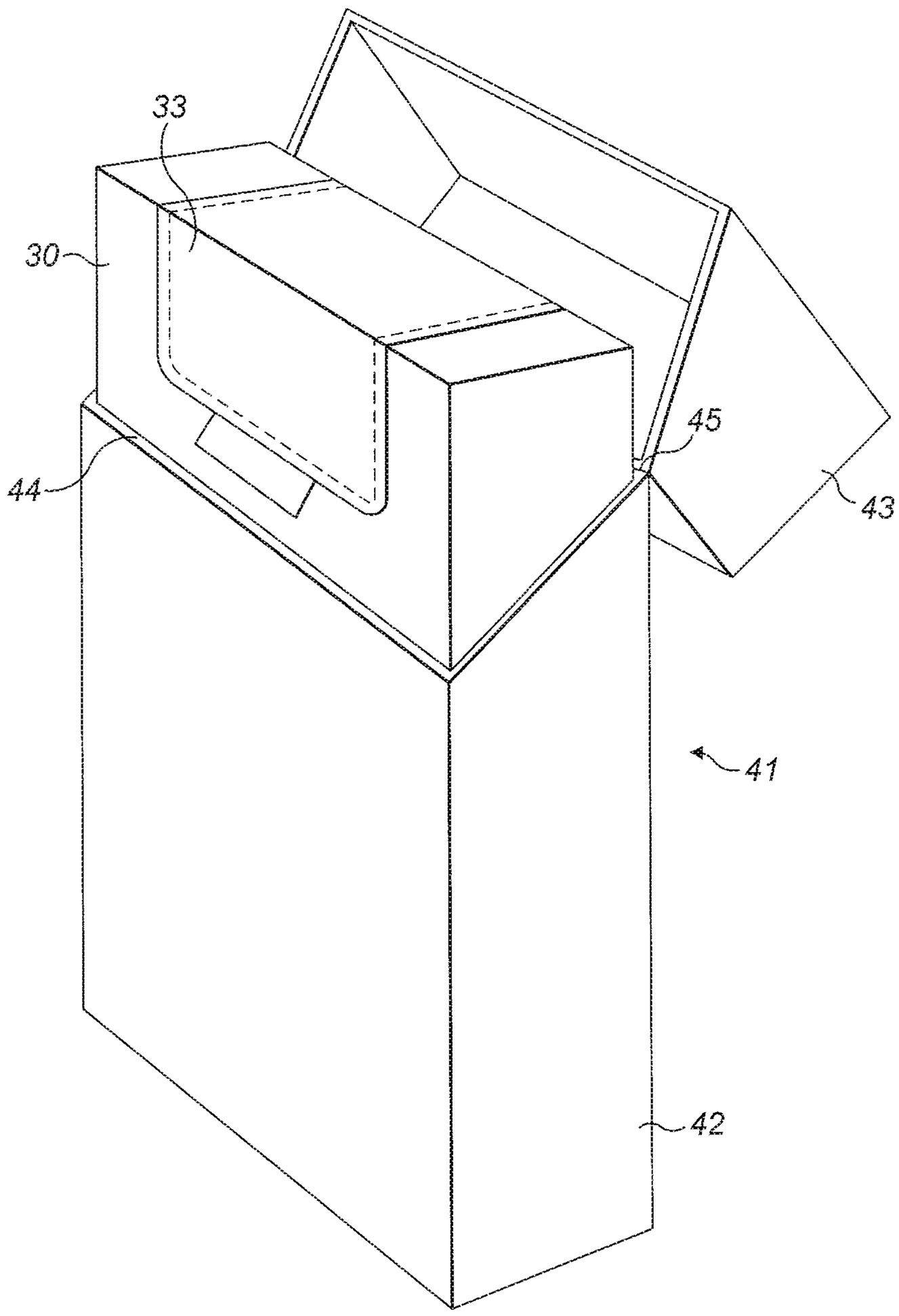

FIG. 9

INNER FRAME BLANK FOR A PACK OF TOBACCO INDUSTRY PRODUCTS

FIELD

The invention relates to an inner frame blank for a pack of tobacco industry products, a wrapped bundle of tobacco industry products that includes an inner frame formed from the inner frame blank, and to a pack of tobacco industry products that includes an inner frame formed from the inner frame blank.

BACKGROUND

Some cigarette packs include a wrapped bundle that consists of a frame that at least partly surrounds a group of cigarettes, and a wrapper that encloses the frame and the cigarettes. The wrapper has a removable or openable portion for providing access to the cigarettes via an opening in the frame.

SUMMARY

According to a first aspect of the invention, there is provided an inner frame blank for a pack of tobacco industry products, the inner frame blank being foldable to form an inner frame for holding a group of tobacco industry products, the inner frame blank comprising a first major panel and a second major panel joined to opposing edges of a central panel such that the first and second major panels are foldable relative to the central panel to form opposing sides of said inner frame, and wherein the inner frame blank further comprises an aperture in at least the central panel that defines an extraction opening for removing tobacco industry products from within said inner frame when the inner frame blank is folded to form said inner frame.

The aperture may extend from the central panel into at least one of the first and second major panels.

In some examples, the inner frame blank may comprise a closed figure that defines the aperture. That is, the aperture is surrounded by material of the inner frame blank on all sides such that the aperture does not extend an edge of the inner frame blank.

The inner frame blank may further comprise at least one side panel attached to an edge of the first major panel or the second major panel such that the side panel is foldable to extend between said opposing sides of said inner frame when the inner frame blank is folded to form said inner frame.

A strengthening tab may extend from the side panel such that, when the inner frame blank is folded to form said inner frame, the strengthening tab at least partially overlaps the central panel.

The inner frame blank may further comprise an end panel joined to an edge of one of the first major panel and the second major panel, the end panel being opposite the central panel.

The opposing edges of the central panel may comprise score lines.

According to a further aspect of the invention, there is also provided an inner frame for a pack of tobacco industry products, the inner frame being formed by folding the inner frame blank described above.

According to a further aspect of the invention, there is also provided a wrapped bundle of tobacco industry products, the wrapped bundle comprising a group of tobacco industry products, an inner frame formed by folding the inner frame blank described above about the group of tobacco industry products, and a wrapper enclosing the inner frame and the tobacco industry products.

According to a further aspect of the invention, there is also provided a wrapped bundle of tobacco industry products, the wrapped bundle comprising a group of tobacco industry products, an inner frame folded about the tobacco industry products, and a wrapper enclosing the inner frame and tobacco industry products, the inner frame comprising a first major panel and a second major panel joined to opposing edges of a central panel such that the first and second major panels are folded relative to the central panel to form opposing sides of the inner frame, and wherein the inner frame further comprises an aperture in at least the central panel that defines an extraction opening for removing tobacco industry products from within the inner frame, and wherein the wrapped bundle further comprises an adhesive label adhered to the wrapper to cover the extraction opening of the inner frame.

The wrapper may comprise an access flap that is aligned with the extraction opening.

The wrapped bundle may further comprise a label applied to the access flap, the label comprising an adhesive such that the access flap is resealable.

The label may cover the access flap and overlie at least part of the wrapper outside of the access flap.

The adhesive may be pressure sensitive adhesive.

The wrapper may be sealably wrapped about the inner frame and tobacco industry products.

The wrapper may comprise fin seals.

The interior of the wrapped bundle may comprise a pressure differential relative to the exterior of the wrapped bundle.

In one example, the pressure differential may comprise at least a partial vacuum within the wrapped bundle.

The wrapped bundle may further comprise a one-way valve for extracting air from within the wrapped bundle or for inserting gas into the wrapped bundle.

The inner frame may further comprise a valve aperture that is aligned with the one-way valve.

The aperture of the inner frame blank may define an extraction opening in the inner frame that extends over an edge of the inner frame, and the edge may comprises a fold in the inner frame.

According to a further aspect of the invention, there is also provided a pack of tobacco industry products, the pack comprising the wrapped bundle described above, and a pack outer adapted to receive the wrapped bundle.

The pack outer may comprise a hinged-lid pack outer having a parallelepiped base in which the wrapped bundle is received such that a portion of the wrapped bundle protrudes from the base, and a parallelepiped lid arranged to cover the portion of the wrapped bundle that protrudes from the base.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIG. **1** shows an inner frame blank for an inner frame of a tobacco industry pack;

FIG. **2** shows the blank of FIG. **1** being wrapped about a group of tobacco industry products;

FIG. **3** shows an inner frame formed from the blank of FIG. **1**, containing a group of tobacco industry products;

FIG. **4** shows a wrapped bundle of tobacco industry products that includes the inner frame and tobacco industry products of FIG. **3**;

FIG. **5** shows a wrapper for the wrapped bundle of FIG. **4**;

FIG. **6** shows an alternative wrapper for the wrapped bundle of FIG. **4**;

FIG. **7** shows a wrapped bundle after it has been opened;

FIG. **8** shows an alternative blank for an inner frame of a tobacco industry pack; and

FIG. **9** shows a hinged lid pack that contains the wrapped bundle of FIG. **4** or FIG. **7**.

DETAILED DESCRIPTION

As illustrated in FIG. **1**, the inner frame blank **1** comprises a first major panel **2**, a second major panel **3**, and a central panel **4**. The first major panel **2** is joined to a first edge **5** of the central panel **4** and the second major panel **3** is joined to a second edge **6** of the central panel **4**. The first edge **5** and second edge **6** of the central panel **4** are opposite one another. In this way, when the inner frame **1** is erected, as described further hereinafter, the first and second major panels **2**, **3** are folded to form sides of the erected inner frame and the central panel **4** forms an end of the erected inner frame.

The first and second major panels **2**, **3** are joined to the central panel **4** along fold lines that form the first and second edges **5**, **6**. The fold lines may be formed by weakening the material of the inner frame blank **1**, for example by scoring or by providing a line of perforations.

In one example, the inner frame blank **1** is made of a card material. In other examples, the inner frame blank **1** is made of a plastic material. In further examples, the inner frame blank is made of a paper material. In some examples, the inner frame blank **1** is made of a laminate material, for example card with a plastic coating.

Also shown in FIG. **1**, the inner frame blank **1** includes an aperture **7**. The aperture **7** is formed in the central panel **4**, so that cigarettes can be removed from the erected inner frame (as will become apparent hereinafter). In this example, the aperture **7** extends from the central panel **4**, across the first edge **5**, and into the first major panel **2**. The aperture **7** may additionally or alternatively extend from the central panel **4**, across the second edge **6**, and into the second major panel **3** in other embodiments.

As illustrated in FIG. **1**, the aperture **7** is a closed shape. That is, the aperture **7** is enclosed on all sides. The aperture **7** of this example is formed in the central panel **4** and the first major panel **2**, and is enclosed on all sides—it is a closed shape.

The inner frame blank **1** of FIG. **1** also includes further panels for forming the inner frame. In particular, a first end panel **8** extends from an opposite edge **9** of the first major panel **2** to the central panel **4**, and a second end panel **10** extends from an opposite edge ii of the second major panel **3** to the central panel **4**. When the inner frame is erected, the first and second end panels **8**, **10** overlie each other to form an end wall of the inner frame that is opposite the central panel **4**.

Furthermore, the inner frame blank **1** of FIG. **1** includes side panels for forming side walls of the erected inner frame. A first pair of side panels **12** extend from edges **14** of the first major panel **2** that are adjacent and perpendicular to the first edge **5** and central panel **4**. Similarly, a second pair of side panels **13** extend from edges **15** of the second major panel **3** that are adjacent and perpendicular to the second edge **6** and central panel **4**. When the inner frame is erected, the side panels **12**, **13** overlie each other to form opposing side walls of the inner frame.

In addition, the inner frame blank **1** of FIG. **1** includes strengthening tabs. In particular, as illustrated in FIG. **1**, a first pair of strengthening tabs **16** extend from ends **17** of the second pair of side panels **13** adjacent the second end panel **10**. In the erected inner frame the first pair of strengthening tabs **16** overlap the first and/or second end panel **8**, **10**.

A second pair of strengthening tabs **18** extend from an opposing end **19** of the second pair of side panels **13**, adjacent to the central panel **4**. In the erected inner frame, this second pair of strengthening tabs **18** overlie the central panel **4**. The second pair of strengthening tabs **18** are of restricted length so that they do not extend across the aperture **7** when the inner frame is erected.

The first and second pairs of strengthening tabs **16**, **18** help to provide rigidity and strength to the erected inner frame.

FIG. **2** illustrates part of a method of assembling the inner frame blank **1** about a group of tobacco industry products **20**. In this example, the tobacco industry products **20** are cigarettes **21** with filters **22** at one end of each cigarette **21**. As shown in FIG. **2**, the group of cigarettes **20** is wrapped in the inner frame blank **1** by placing the filters **22** of the cigarettes **21** adjacent to, or against, the central panel **4**, and the first and second major panels **2**, **3** are folded against the sides of the group of cigarettes **20**. Following this, the end panels **8**, **10**, side panels **12**, **13**, and strengthening tabs **16**, **18** can be folded to form the end and sides of the erected inner frame. The end panels **8**, **10**, side panels **12**, **13**, and strengthening tabs **16**, **18** can optionally be joined to each other and/or to the central panel **4**, for example using an adhesive or heat sealing.

FIG. **3** illustrates the erected inner frame **23**, which contains the group of cigarettes **20** that can be extracted via an extraction opening **24** formed by the aperture **7** of the inner frame blank **1** (see FIG. **1** and FIG. **2**). As shown, the filters **22** of the some of the cigarettes **21** can be grasped through the extraction opening **24** for removal from the inner frame **23**. Once some cigarettes **21** have been removed, the others can be moved into alignment with the extraction opening **24** for removal.

As illustrated in FIG. **3**, the erected inner frame **23** comprises a front face **25**, which is formed from the first major panel **2** of the inner frame blank **1** (see FIG. **1** and FIG. **2**), a rear face (not shown), which is formed from the second major panel **3** of the inner frame blank **1** (see FIG. **1** and FIG. **2**), and an end face **26**, which is formed from the central panel **4** of the inner frame blank **1** (see FIG. **1** and FIG. **2**).

The extraction opening **24** of this example extends from the end face **26** into the front face **25** because the aperture **7** of the inner frame blank **1** extended from the central panel **4** into the first major panel **2**. In this example, as shown, the extraction opening **24** extends over a front edge **28** of the erected inner frame **23**. However, in alternative examples the aperture **7** is only present in the central panel **4**, and so the extraction opening **24** is formed solely in the end face **26** of the erected inner frame. Cigarettes can be extracted lengthwise through such an extraction opening. In addition, the aperture **7** of the inner frame blank **1** may additionally extend into the second major panel **3**, in which case the extraction opening **24** would extend into the rear face (not shown) of the erected inner frame **23**.

Furthermore, the inner frame **23** has opposing side faces **27** (only one shown), which are formed from the first and

second pairs of side panels **12**, **13** of the inner frame blank **1** (see FIG. **1** and FIG. **2**) that are folded to overlie each other. In this example, the first pair of side panels **12** are folded to form the outside of the side faces **27** of the inner frame **23**, but it will be appreciated that the second pair of side panels **13** may alternatively by folded to form the outside of the side faces **27** of the inner frame **23**. The first side panel **12** and the second side panel **13** of each side face **27** may be joined together, for example using an adhesive or heat seal.

Also, the inner frame **23** has a bottom face (not shown) which is opposite the end face **36**. The bottom face is formed from the first end panel **8** and second end panel **10** of the inner frame blank **1** (see FIG. **1** and FIG. **2**). In this example, the first end panel **8** is folded to form the outside of the bottom face of the inner frame **23**, but it will be appreciated that the second end panels **10** may alternatively be folded to form the outside of the bottom face of the inner frame **23**. The first and second end panels **8**, **10** are folded to overlie each other, and may be joined together, for example using an adhesive or heat seal.

Furthermore, the first strengthening tabs **16** (not visible in FIG. **3**, see FIG. **1**) have been folded and are arranged against at least one of the first and second end panels **8**, **10** that form the bottom face of the inner frame **23**. The first strengthening tabs **16** may be joined to the first and/or second end panels **8**, **10**, for example by an adhesive or heat seal.

In addition, the second strengthening tabs **18** (not visible in FIG. **3**, see FIG. **1**) may be folded to underlie the end face **26** of the erected inner frame. The second strengthening tabs **18** may be joined to the central panel **4** that forms the end face **26**, for example by an adhesive or heat seal. The first and second strengthening tabs **16**, **18** help to increase the structural rigidity and strength of the erected inner frame **23**.

As is apparent in FIG. **3**, the group of cigarettes **20** is entirely surrounding by the inner frame **23** with the exception of the extraction opening **24**. That is, as explained, the inner frame **23** has six sides that at least partially surround the group of cigarettes **20** on all sides.

As explained previously, the aperture **7** in the inner frame blank **1** (see FIG. **1**) is a closed shape. In this way, the erected inner frame **23** has good structural rigidity and strength in the region of the extraction opening **24** because the first major panel **2**, second major panel **3**, and the central **4** are integrally attached to each other.

Furthermore, the opposing side faces **27** of the erected inner frame **23** also help to increase the structural rigidity, particularly if they are joined together, as described. Moreover, the first strengthening tabs **16** will help to increase the structural rigidity and strength of the inner frame **23** in the region of the bottom face, especially if the first strengthening tabs **16** are joined to the end panels **8**, **10**. The second strengthening tabs **18**, being present underneath the central panel **4** that forms the end face **26** of the inner frame **23**, will also help to increase the structural rigidity and strength of the inner frame **23**, particularly around the extraction opening **24** which might otherwise be a weaker part of the inner frame **23**. Joining the second strengthening tabs **18** to the central panel **4**, for example by adhesive, will further help to increase the structural rigidity and strength of the inner frame **23** in the region of the extraction opening **24**.

As illustrated in FIG. **4**, the erected inner frame (**23**, see FIG. **3**) and group of cigarettes (**20**, see FIG. **3**) therein may be enclosed in a wrapper **29** to form a wrapped bundle **30**.

The wrapper **29** is formed from a flexible sheet material, for example a flexible polymer wrap. The wrapper **29** may be a laminate material that could include foil, metallised polymer adhesive, and other such packaging materials. In a preferred embodiment, the barrier material **21** comprises a laminate having three layers—outer layers of orientated polypropylene and a middle layer of metal foil, for example aluminum foil. In another example, the wrapper **29** comprises a single layer of polypropylene, which may be orientated polypropylene. The wrapper **29** may be provided with printing, for example ink.

As shown in FIG. **4**, the wrapper **29** may be sealed about the inner frame **23** and group of cigarettes **20** by fin seals **31**. In this example, side fin seals **31** are formed adjacent to the opposing side faces **27** of the inner frame **23** (see FIG. **3**), and a further fin seal (not shown) is formed across the back face of the inner frame **23**, perpendicular to the side fin seals **31**.

The fin seal **31** may be formed using heat, for example using heated plates that press parts of the wrapper **29** together to form the fin seal **31**. Alternatively, induction sealing or ultrasonic sealing may be used to form the fin seal **31**. Each of these sealing processes joins one part of the wrapper **29** to another to form a fin seal **31**.

In alternative examples, the wrapper **29** may be heat sealed about the inner frame **23** and group of cigarettes **20**. In this case, the ends of the wrapper **29** may be formed into overlapping flaps that lay against the faces of the inner frame **23**, the flaps are then pressed against each other by heated plates to join them together by heat sealing. The heated plates may alternatively be induction or ultrasonic sealers that cause heating of the material of the wrapper **29** to join the flaps together.

In further alternative examples, the wrapper **29** may be sealed about the inner frame **23** and group of cigarettes **20** using adhesive. In this case, the ends of the wrapper **29** may be formed into overlapping flaps that are arranged against the faces of the inner frame **23** and adhered to each other and/or to the inner frame **23**.

The example wrapper **29** of FIG. **5** is for wrapping about an inner frame **23** and group of cigarettes **20** to form the wrapped bundle **30** of FIG. **4**. The wrapper **29** includes a line **32** that defines an access flap **34** that forms an opening when the wrapped bundle **30** (see FIG. **4**) is opened. In this example, the line **32** is 'U' shaped so that the access flap **34** remains attached to the wrapper **29**. In an alternative example, the line **32** defines a closed shape and the access flap **34** can be removed from the wrapper **29**. The line **32** may be a through cut, or it may be a line of weakness, for example a score line or a line of perforations. The line of weakness may be formed, for example, by a mechanical cutter or a laser scorer.

The wrapper **29** also includes a resealing label **33** that is adhered to the outside surface of the wrapper **29** using a pressure sensitive adhesive. The resealing label **33** is adhered over the access flap **34** defined by the line **32**. The resealing label **33** is larger than the access flap **34** so that edges of the resealing label **33** are joined to a part of the wrapper **29** outside of the access flap **34**. The resealing label **33** may include a pull tab **35** for pulling the adhesive label **33**. The pull tab **35** may be free from adhesive, or adhesive on the pull tab **35** may be masked or neutralised. In this way, the resealing label **33** provides for a resealable opening in the wrapper **29**.

The resealing label **33** may be made of a flexible sheet material, for example a polypropylene or laminate. The resealing label **33** may include a foil layer and/or printing.

As illustrated in FIG. **7**, when the resealable label **33** is lifted using the pull tab **35** it peels away from the wrapped

bundle **30** and lifts the access flap **34** to expose the cigarettes **21** through the extraction opening **24** of the inner frame **23**. The pressure sensitive adhesive permits the resealing label **33** and access flap **34** to be replaced, resealing the wrapped bundle **30**.

In the alternative example of the wrapper **29**, illustrated in FIG. **6**, the line **32** is a 'U' shaped through cut located towards the pull tab **35**, and further lines of weakness **36** extend from the ends of the line **32**. In this way, when the pull tab **35** is pulled the line **32** separates and the wrapper **29** material is then torn along the lines of weakness **36** to form the access flap **34** shown in FIG. **7**.

Preferably, the 'U' shaped line **32** is located entirely on the front face **25** of the inner frame **23** and the lines of weakness **36** extend over the front edge **28** of the inner frame **23** (see FIG. **3**). This arrangement may provide improved the sealing of the line **32** by the resealing label **33** prior to the wrapped bundle **30** first being opened.

In some examples, the resealing label **33** is adhered to the wrapper **29** using only pressure sensitive adhesive. In this way, the resealing label **33** can be reattached to the wrapper **29**, while within the area of the access flap **34** the pressure sensitive adhesive provides enough sticking force to lift the access flap **34** during opening of the wrapped bundle **30**. In other examples, an area of permanent adhesive is provided between the resealing label **33** and the access flap **34**, and the remainder of the resealing label **33** is provided with pressure sensitive adhesive. This may ensure that the access flap **34** is lifted when the pull tab **35** is pulled to open the wrapped bundle **30**.

Additionally or alternatively, a rear edge **37** (see FIG. **7**) of the resealing label **33** may be adhered to the wrapper **29** using a permanent adhesive. This would prevent the resealing label **33** being removed from the wrapped bundle **30**.

In various embodiments of the present invention, a pressure differential is provided between the interior and exterior of the wrapped bundle **30** to help preserve the flavour and freshness of the cigarettes **21**. In a preferred example, the pressure differential is a partial vacuum that can be created by evacuating at least some of the air from the wrapped bundle **30**. In another example, the pressure differential is a positive pressure within the wrapped bundle **30** that can be created by pumping a gas into the wrapped bundle **30**. A positive pressure means a pressure that is above atmospheric pressure, i.e. a pressure greater than about 1 bar at standard ambient temperature, i.e. 25 degrees Celsius.

Preferably, the wrapper **29** is sealed about the inner frame **23** and group of cigarettes **20** to allow pressure differential to be maintained until the wrapped bundle **30** is opened. In this case, the fin seals **31** described with reference to FIG. **4** are preferred. Preferably, the wrapper **29** is impermeable to air. The wrapped bundle **30** may be hermetically sealed.

A partial vacuum within the wrapped bundle **30** can be provided by evacuating air from within the wrapped bundle **30**. This may be performed by exposing the partially wrapped bundle **30** to a reduced-pressure environment prior to forming the last of the seals. Similarly, a positive pressure may be provided by exposing the partially wrapped bundle **30** to an increased-pressure environment prior to forming the last of the seals.

Alternatively, as illustrated in FIG. **7**, the wrapped bundle **30** may include a one-way valve **38** through which air can be removed or inserted after the wrapper **29** has been wrapped and sealed about the inner frame **30** and group of cigarettes **20**. The one-way valve **38** may be adhered over a hole through the wrapper **29** so that air can be removed from the wrapped bundle **30** or inserted into the wrapped bundle via the hole in the wrapper **30** and the one-way valve **38**. A suction pipe, vacuum chamber or pump may be used to remove or insert air through the one-way valve **38**.

It will be appreciated that varying degrees of air may be evacuated from the wrapped bundle **30**, but that the pressure within the wrapped bundle **30** will be reduced. It will also be appreciated that not only air may be evacuated from the wrapped bundle **30**, and any gas that is present at that time can be evacuated.

In various examples, the partial vacuum within the wrapped bundle **30** has a pressure of less than 1 bar at standard ambient temperature, i.e. 25 degrees Celsius.

In some examples, at standard ambient temperature the partial vacuum within the wrapped bundle **30** is less than 500 millibar, for example between 40 and 300 millibar. In other embodiments, at standard ambient temperature the partial vacuum within the wrapped bundle **30** is less than 150 millibar, preferably about 80 millibar. However, it will be appreciated that the partial vacuum within the wrapped bundle **30** may be any value less than 1 bar.

In examples where the wrapped bundle **30** has a one-way valve **38**, as illustrated in FIG. **7**, the inner frame **23** may be provided with a valve aperture **39**. In particular, as shown in FIG. **8**, the first major panel **2** of the inner frame blank **1** may include a valve aperture **39** that is aligned with the valve **38** in the wrapped bundle **30** once the wrapper **29** is wrapped about the erected inner frame **23** (see FIG. **7**). The valve aperture **39** permits air to more freely move from the interior of the inner frame **23** within the wrapped bundle **30** through the one-way valve **38** when suction is applied to the wrapped bundle **30**.

It will be appreciated that the one-way valve **38** may be placed on an alternative face of the wrapped bundle **30**, for example the rear face or a side face, and in that case the valve aperture **39** can be provided in a corresponding location on the inner frame blank **1**.

If the wrapped bundle **30** is provided with a partial vacuum, as described above, then the pressure difference causes a compressive force to be created that acts on the contents of the wrapped bundle **30**, in particular the inner frame **23** and group of cigarettes **20**. The additional structural rigidity and strength of the inner frame **23** in the region of the extraction opening **24**, created by forming the extraction opening **24** as a closed shape within the inner frame blank **1**, helps to resist this compressive force and protects the group of cigarettes **20** from crushing. In addition, the side panels **12**, **13**, end panels **8**, **10** and strengthening tabs **16**, **18** also help to increase the structural rigidity and strength of the inner frame **23** and so resist the compressive force created by the low pressure.

The wrapped bundle **30** illustrated in FIG. **4** and FIG. **7** may be stand-alone packaging for tobacco industry products. That is, the wrapped bundle **30** may be distributed and sold without further packaging.

Alternatively, as illustrated in FIG. **9**, the wrapped bundle **30** may be disposed in a hinged-lid pack outer **41**. The hinged-lid pack outer **41** has a parallelepiped base **42** and a parallelepiped lid **43**. The wrapped bundle **30** is received in the base **42** and protrudes from an open end **44** of the base **42**. The lid **43** is hingedly attached to the base **42** along a hinge line **45** and can pivot to cover the protruding part of the wrapped bundle **30**. The resealing label **33** is accessible on the protruding part of the wrapped bundle **30**, so that after opening the lid **43** a user can open the wrapped bundle **30** to extract cigarettes.

The packaging described above, in particular the hinged-lid pack **41**, wrapped bundle **30**, inner frame **23** and wrapper

29, are described with reference to cigarettes. However, it will be appreciated that the packaging may alternatively be used to package any smoking article or tobacco industry product.

As used herein, the term "tobacco industry product" is to be understood as including smoking articles comprising combustible smoking articles such as cigarettes, cigarillos, cigars, tobacco for pipes or for roll-your-own cigarettes, (whether based on tobacco, tobacco derivatives, expanded tobacco, reconstituted tobacco, tobacco substitutes or other smokable material), electronic smoking articles such as e-cigarettes, heating devices that release compounds from substrate materials without burning such as tobacco heating products; and hybrid systems to generate aerosol from a combination of substrate materials, for example hybrid systems containing a liquid or gel or solid substrate.

In one embodiment, the tobacco industry product is a smoking article for combustion selected from the group consisting of a cigarette, a cigarillo and a cigar.

In one embodiment, the tobacco industry product is a non-combustible smoking article.

In one embodiment the tobacco industry product is a heating device which releases compounds by heating, but not burning, a substrate material. The material may be for example tobacco or other non-tobacco products, which may or may not contain nicotine. In one embodiment the heating device is a tobacco heating device.

In another embodiment the tobacco industry product is a hybrid system to generate aerosol by heating, but not burning, a combination of substrate materials. The substrate materials may comprise for example solid, liquid or gel which may or may not contain nicotine. In one embodiment, the hybrid system comprises a liquid or gel substrate and a solid substrate. The solid substrate may be for example tobacco or other non-tobacco products, which may or may not contain nicotine. In one embodiment the hybrid system comprises a liquid or gel substrate and tobacco.

The packaging described above, in particular the hinged-lid pack **41**, wrapped bundle **30**, inner frame **23** and wrapper **29**, are described with reference to tobacco industry products, for example cigarettes. However, it will be appreciated that the packaging may alternatively be used to package non-tobacco-industry products. For example, the packaging may alternatively be used to packaging any consumer product, such as an article or a product. In examples, the packaging is used to package food products, electronics, or other consumer goods, such as for example tissues.

In order to address various issues and advance the art, the entirety of this disclosure shows by way of illustration various embodiments in which the claimed invention(s) may be practiced and provide for superior inner frame blank, inner frame, wrapped bundle, and pack for tobacco industry products. The advantages and features of the disclosure are of a representative sample of embodiments only, and are not exhaustive and/or exclusive. They are presented only to assist in understanding and teach the claimed features. It is to be understood that advantages, embodiments, examples, functions, features, structures, and/or other aspects of the disclosure are not to be considered limitations on the disclosure as defined by the claims or limitations on equivalents to the claims, and that other embodiments may be utilised and modifications may be made without departing from the scope and/or spirit of the disclosure. Various embodiments may suitably comprise, consist of, or consist essentially of, various combinations of the disclosed elements, components, features, pails, steps, means, etc. In addition, the disclosure includes other inventions not presently claimed, but which may be claimed in future.

The invention claimed is:

1. A wrapped bundle of tobacco industry products, the wrapped bundle comprising a group of tobacco industry products, an inner frame folded about the tobacco industry products, and a wrapper enclosing the inner frame and tobacco industry products, the inner frame comprising a first major panel and a second major panel joined to opposing first and second edges of a central panel along respective first and second fold lines such that the first and second major panels are folded relative to the central panel along respective first and second fold lines to form opposing sides of the inner frame, the inner frame further comprising first and second end panels joined to a respective edge of the first and second major panels along respective fold lines, the first and second end panels being arranged to overlie each other and form an end wall that is opposite the central panel and wherein the inner frame further comprises an aperture in at least the central panel that defines an extraction opening for removing tobacco industry products from within the inner frame, wherein the extraction opening extends over the first edge of the central panel and is spaced from the second edge, and wherein the wrapped bundle further comprises an adhesive label adhered to the wrapper to cover the extraction opening of the inner frame, and wherein the interior of the wrapped bundle comprises a pressure differential relative to the exterior of the wrapped bundle, the pressure differential comprising a partial vacuum of less than 500 millibar.

2. The wrapped bundle of claim **1**, wherein the aperture extends from the central panel into at least one of the first and second major panels.

3. The wrapped bundle of claim **2**, wherein the inner frame blank comprises a closed figure that defines the aperture.

4. The wrapped bundle of claim **1**, further comprising at least one side panel attached to an edge of the first major panel or the second major panel such that the side panel is foldable to extend between said opposing sides of said inner frame.

5. The wrapped bundle of claim **4**, wherein a strengthening tab extends from the side panel such that, the strengthening tab at least partially overlaps the central panel.

6. The wrapped bundle blank of claim **1**, wherein the opposing edges of the central panel comprise score lines.

7. The wrapped bundle of claim **1**, wherein the wrapper comprises an access flap that is aligned with the extraction opening.

8. The wrapped bundle of claim **7**, further comprising a label applied to the access flap, the label comprising an adhesive such that the access flap is resealable.

9. The wrapped bundle of claim **8**, wherein the label covers the access flap and overlies at least part of the wrapper outside of the access flap.

10. The wrapped bundle of claim **8**, wherein the adhesive is pressure sensitive adhesive.

11. The wrapped bundle of claim **1**, wherein the wrapper is sealably wrapped about the inner frame and tobacco industry products.

12. The wrapped bundle of claim **11**, wherein the wrapper comprises fin seals.

13. The wrapped bundle of claim **1**, further comprising a one-way valve for extracting air from within the wrapped bundle or for inserting gas into the wrapped bundle.

14. The wrapped bundle of claim **13**, wherein the inner frame further comprises a valve aperture that is aligned with the one-way valve.

15. A pack of tobacco industry products, the pack comprising the wrapped bundle of claim **1**, and a pack outer adapted to receive the wrapped bundle.

16. The pack of claim **15**, wherein the pack outer comprises a hinged-lid pack outer having a parallelepiped base in which the wrapped bundle is received such that a portion of the wrapped bundle protrudes from the base, and a parallelepiped lid arranged to cover the portion of the wrapped bundle that protrudes from the base.

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